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(54) Title: IDENTIFICATION OF GENES INVOLVED IN ANGIOGENESIS, AND DEVELOPMENT OF AN ANGIOGENESIS DIAGNOSTIC CHIP TO IDENTIFY PATIENTS WITH IMPAIRED ANGIOGENESIS

(57) Abstract: The invention is directed to methods for angiotyping individual patients to predict the likelihood of whether a given individual will develop good vs. poor collaterals naturally. Accordingly, this can involve obtaining and providing a list of genes involved in collateral development. In particular, angiotyping individual patients can be used to predict the likelihood of whether a given individual will develop good vs. poor collaterals in response to specific angiogenesis therapy. From an array of genes that have been determined through experimental studies as being differentially expressed in tissues in which collaterals are developing in response to arterial occlusion, single nucleotide polymorphisms (SNPs), or other epigenetic changes, such as DNA methylation patterns, can be identified. SNPs and DNA methylation patterns are detected using microchips or similar technology assaying for all, or most, of the genes determined to play a role in collateral development. In addition, abnormally low or abnormally high differential expression of any combination of the candidate genes can be detected in such tissue as peripheral blood cells. The presence of a predisposition to develop poor vs. good collaterals is indicated by the presence of SNPs, and/or alterations in DNA methylation patterns, and/or difference in expression levels involving one or more of the genes.

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